An Invented Alien Language Analysis

HONORS THESIS (HONR 499)

By

Laura A. Norris

Thesis Advisor

Dr. Mai Kuha

Ball State University

Muncie, Indiana

May 2017

Expected graduation

May 2017

Abstract: The purpose of this analysis was to look at the linguistic features in Klingon, Sindarin, and Na'vi and compare them to a set of linguistic universal tendencies. It sought to determine how different each was compared to Earth languages and how difficult it might be for a human being to learn one of the languages. The analysis was designed to present background information on each of the topics, then each of the languages, and then make comparisons between them. The results of the study were the languages of the three alien species fell within the set of universal tendencies for the most part. Relative clauses were the syntactic feature that departed from the universal tendencies for two of the three languages. Despite being very different from Earth languages and each other, a person should be able to learn these languages, and while some of the alien languages have sounds not commonly used in the learner's native language, it still remains very possible with extra practice.

Acknowledgements: To my parents for instilling in me a love of learning and the courage to do the hard things. From sitting quietly next to me while I researched; to rejoicing when I had a break through; for always being interested in what I was talking about, even when it made no sense to you; and for talking me through my innumerable moments of writer's block you have always been there for me. This would not have been possible without both of you. I give my most sincere gratitude and any many, many thanks.

To Carla Earhart, my good friend and mentor: Your guidance throughout my time at Ball State University has been invaluable. You have taught me lessons about people and my life I will use for the rest of my life.

To my eternal cheerleader, stress reliever, and fiancé: You have been such an encouragement and source of tranquility. I would have been lost without you.

With special mention, Emily Barsic, Alyssa Smith, Amy Rodgers, Kendra Roberts, Lisa Kuriscak, Laurie Lindberg, and Jason Powell. You all have played such important roles as who I am as a person, writer, and student.

Thank you all for your support and encouragement.

Process Analysis: Since I compared three alien languages, the process for this essay included finding sources for Sindarin, Klingon, and Na'vi for comparison. The resources were surprisingly difficult to find; not because there was a lack of them, but rather they were not stated in technical terms. Since some texts are written in technical terms and others are not, it took some teasing to get the needed information from the text. After that, I had to double check the information that I teased from the texts to make sure that was what the author intended to convey. Since all three of the languages have large fan bases, many sources online can contain information about the language that is not consistent with what its creator set forth or intended. Sifting through this information took much more time to find sources that could be proven to be faithful to the language's design.

In linguistics, universals are patterns, or tendencies that systematically describe potentially all languages, as the name implies. Because the intended audience for this thesis is the general public at a ComiCon-like event, I decided to set the thesis up with back ground information preceding the universals so that any reader, regardless of linguistic background or skill level, would have the needed background information to fully understand each section. Giving a miniature tutorial of sorts on the different linguistic features prevents any confusion about technical terms and gives the reader a sense of direction for each part.

I have always enjoyed learning new languages and listening to their speakers. There is something inherently beautiful about speech and language to me. I grew up watching The Lord of the Rings, Star Trek, and Avatar, and each one has an invented language that I dreamed about trying to learn. When I came to Ball State and was given the opportunity to study how speech is produced and how language functions, I knew my dream could become a reality. My

journey with this research began in an Introduction to Linguistics class where a cohort and I attempted to compile notes and appendices from J. R. R. Tolkien's elvish language, Sindarin, into a presentation about the sound system and alphabet of the language as a resource for those who wanted to learn Elvish. With some background knowledge in speech and language, the next logical step was to expand my horizons with this thesis.

I spent many hours reading through articles on language universals, searching for information about the linguistic structures of each language, compiling the results and determining which features had enough information to discuss. I was able to apply the knowledge from speech-language pathology and linguistics in a format that is both intrinsically valuable on a personal level but also serves as an exercise in the skills I will need in my field when working with persons of international origins. The quality of this thesis has a positive correlation with the quality of research and time that it took to bring the finished product to fruition.

Have you ever wondered what it'd be like to talk a completely different language- not just a language from different country, but a language from an entirely different species? In this cross-linguistic analysis, we will be researching alien languages. Learning a new language just got a lot harder than learning a weird Earth language; we will explore absolute universals and universal tendencies across three invented alien languages. The three languages we will specifically look at are Klingon, the alien language used in the show *Star Trek*, Sindarin, the Elven language from the *Lord of the Rings*, and Na'vi, the language of the humanoid aliens from *Avatar*.

Since these alien species exist only in the fictional word, how would we know whether we could learn their language and have cross species communication? That's a great question. We can determine the possibility and feasibility of cross-species communication through a linguistic analysis of each language and comparing them. Before we begin, we have some basic information that needs to be addressed to guide us through the journey. Each major section includes definitions, and a short tutorial to fill in any missing background information you, as the reader, may have that would be essential to understanding the path we are taking with these invented alien languages. Most Earth languages, spoken by humans today, all follow a very similar pattern. They all include the basic format of sentence patterns and pronouns and their uses. But when it comes to the non-human species communication systems, we'll be taking an even closer look into just exactly how different they are not just from our language, but each other as well.

Before we begin setting up the back-ground information about universals, it is important to know a bit about the authors of the texts chosen to represent Klingon, Na'vi and

Sindarin. First is Mark Okrand; he is the original designer of Klingon for *Star Trek*. His goal for Klingon was "to be as unlike human language as possible while still pronounceable by actors." At Klingon conventions, new rules, words, and grammatical tendencies are only fan based ideas or slang until he allows them into the language officially (Okrent, 2010). How neat is that? Second is William Annis; he compiled the information about Na'vi that we will be using throughout. Paul R. Frommer, who is the actual creator of Na'vi, is a mathematics professor who turned to linguistics. You would be surprised how often that happens. Third is David Salo; he compiled and organized the works and notes of the language's creator. Sindarin was created by J. R. R. Tolkien. He actually started with a language and worked backwards creating the mythology and history from there. Tolkien referred to his work with linguistics as "discovering a wine-cellar filled with bottles of amazing wind of a kind and flavor never tasted before. It quite intoxicated [him]" (Okrent, 2010). David Salo, however, was a doctoral student at the University of Wisconsin who became the primary consultant to Peter Jackson for The *Lord of the Rings* films (Salo, 2004). *A gateway to Sindarin* is the result of his work compiling information from Tolkien's journals, notes, appendixes, and other works.

When we talk about universals, there are actually two main kinds, which can then be further broken down. One type is called a "typicality universal" or statistical universal. It is a "statistical tendency for language which is higher than chance frequencies across languages" (Piantadosi & Gibson, 2014). Another is absolutes; these "strictly constrain space of humanly possible languages" and nearly all absolutes are contested to some degree (Piantadosi & Gibson, 2014). The one of the most difficult aspects of absolute universals is they "are never testable. ... No amount of data conforming to the generalization provides any reason to believe

that there are no languages that do not conform" (Piantadosi & Gibson, 2014). This essentially means that there is a possibility that one day, we may come in contact with a language that violates what was once thought to be a linguistic universal. "Universals do more than [have explanatory value]: they state not only what is possible in languages, but depending on whether they are statistical or absolute, they say what is probable or what is necessary in languages" (Moravcsik, 2007). In order to have a statistical argument for something to be impossible, or to be an absolute universal, one would need 500 independent languages (Piantadosi & Gibson, 2014). This sounds relatively easy right, especially since we know thousands of languages exist, right? Independent is much more hefty in this context. For example, Spanish and Italian are not considered independent languages because they are genetically and historically related, because they are both Romance languages. "To the best of our knowledge, it will be in general not possible to find 500 independent languages" (Piantadosi & Gibson, 2014). The amount of evidence required to statistically argue for a true absolute universal in extremely great. To give a rough estimate of how difficult it is the World Atlas of Language Structures (WALS) only has 221 independent languages in its system (Piantadosi & Gibson, 2014). There are also implicational and non-implicational universals. An implicational universal is simply an "if A is true, then B holds" statement, and non-implicational is simply a generalized statement about an aspect of linguistics (Finegan, 2004). For much of this research endeavor we will be looking at universal tendencies.

Phonology

Phonology is the study or "description of the systems and patterns of sounds in a language" (Yule, 2014). Before discussing these universals, here is a brief reminder of terms relevant to this section.

There are three placement descriptors for vowels that refer to roundness, front to back position, and top to bottom position. Rounded/unrounded refer to the shape the lips make when producing the sound. Front/central/back refers to the tongue's placement in the mouth from front to back; and high/mid/low refers to the tongue's placement in the mouth from the top to bottom and is the difference between *beet*, *bet*, and *bought*. Descriptors like front, central, mid or back can be paired to denote a particular vowel sound. For example, a high front unrounded vowel could be /i/ as in *marine*, or /ɪ/ as in *consist*. Diphthongs are two vowels that come together to form a different sound, and are produced by the first sound approximating the second.

Consonants have significantly more descriptors. They can be divided into categories including plosives, nasals, trills, fricatives, approximants, ejectives and affricates; voiced and voiceless; and by the articulator positions. Plosives are sounds created with a short burst of air including /b/ as in *ball*, /t/ as in *tap*, or /g/ as in *bag*. Nasals are sounds that resonate through the nose like /n/ in *nail*, or /ŋ/ as in *ring*. Trills are sounds that are not present in English but are in other languages like Spanish. They denote different words. *Perro*, the word for dog, has a trilled r, while *pero*, the Spanish conjunction but, does not. Fricatives are consonants produced through friction in the air flow. These consonants include /f/ as in *fan*, /ʃ/ as in *show*, or /h/ in *house*. Approximants are exactly what they sound like; sounds that some close to a position but

don't quite make it; /j/ as in *yes* is an example. Fricatives and approximants can both be lateralized meaning the tension on the sides of the tongue is lessened to allow air flow to escape. An ejective consonant is one whose air flow completely and forcibly stops before continuing on. Affricates are the combination of a plosive sound with a fricative. An example is /ʧ/ in *chair*. Consonants are either voiced or voiceless, and they usually appear paired together.

Consonants can also be described by their articulator placement. Bilabial consonants are formed using both lips like /b/ and /m/. Labiodental consonants are formed by pressing the top teeth down on the bottom lip like /f/ and /v/. Dental consonants are formed by placing the tongue on the back side of the teeth like /t/ as in *torn*. Alveolar consonants are formed by placing the tongue on the alveolar ridge, the ridges right behind the teeth, like /n/, /s/, or /z/. Velar consonants are produced at the back of the mouth with the tongue on the soft palate like /k/, /g/ or /ŋ/. Uvular sounds are produced even further back than k or g sounds. The /q/ sound is produced like the /k/ but even further back in the throat. These sounds may seem like the speaker is choking. Glottal sounds are produced at the back of the throat. Examples are /h/ and /ʔ/. The h sound is very common. A /ʔ/ is called a glottal stop, and it is sound that happens between the syllables of *uh-oh*.

Phonological Universals

All languages have at least one high front unrounded vowel, a low vowel and a high back vowel (Finegan, 2004); these are /i/ as in *marine*, /a/ as in *father*, and /u/ as in *boot*. When speakers have only a few vowels to work with it is important those vowels are very different to prevent miscommunications. When the language adds a fourth vowel it is usually a high, central vowel or a mid, front vowel (Finegan, 2004). When a language has five or more vowels, it will

have at least one mid, back vowel. Some languages will have nasal vowels, but they shouldn't outnumber the oral vowels (Finegan, 2004). Consonants have even fewer universals than the vowels. Languages will have three stops or plosives: /p/ as in *pen*, /t/ as in *ten*, and /k/ as in *cat*; voiced stops cannot exist without voiceless stops, and in the event a language does not have a voiceless stop it will have a similar fricative instead, for example, /f/ takes the place of /p/ in Arabic (Finegan, 2004).

How do Sindarin, Klingon, and Na'vi conform to these language universals?

Sindarin is a vowel dominant language containing 6 vowels and 6 diphthongs, and the majority them are open (Salo, 2004). Klingon is a consonant based language, but despite this the language has six vowels and five diphthongs (Okrand, 1992). Na'vi is a balanced language and has eight vowels and four diphthongs (Annis, 2013). The three languages contain the universal vowels /a/, /i/, and /u/. In addition, they all possess /ɛ/ which continues to follow the universal for languages with four or more vowels to have a mid, front vowel. In terms of vowels, Sindarin, Klingon and Na'vi appear to meet the universals.

As previously stated the consonant universals are the presence of /p/, /k/, and /t/ sounds, pairings of voiced and unvoiced stops, and in the absence of the previous universal a voiceless fricative takes the place of a voiceless stop (Finegan, 2004). All three languages have the voiceless stops /p/, /k/, and /t/. Klingon and Sindarin follow the universal about having pairs of voiced and voiceless stops (Okrand, 1992; Salo, 2004), while Na'vi does not fit this rule because the language does not contain any voiced stops, only voiced fricatives (Annis, 2013). In terms of vowels and consonants these three fictional languages mostly fit within these phonological universals.

Syllables and Stress

Another important feature of language is word and syllable stress. Stress affects the meter of spoken word and in turn how it sounds and what it means to the listener. In other words, stress affects the prosody of speech. Many languages use tone, "the manipulation of vocal pitch to distinguish lexical or grammatical meaning", while others use stress (Yip, 2002) . Stress is when the speaker emphasizes all or part of a word to convey a specific meaning. "While a large plurality of languages show some evidence for word stress (including some tone languages), few are like English in making stress the central issue of their word-level phonology and morphology" (Hyman, 2010). As it turns out, English may actually be a minority in this case, and given this information could explain a lack of stress universals for language. However, Sindarin, Klingon, and Na'vi all deal with syllable and word stress, making it worth discussing. Every word will have at least one syllable marked for stress, but only one syllable can be marked for the highest degree of prominence, also known as primary stress (Hyman, 2010). Syllable stress and breaks are interconnected and will be discussed as such.

Sindarin, like most languages, has a "vocalic core" when it comes to syllables, and this means that each syllable absolutely must have a vowel, but can still be accompanied by one or more consonants (Salo, 2004). Sindarin has two types of stress for single syllable words: strong and light. Strong stress falls on monosyllabic nouns, verbs, and adjectives, while light stress tends to fall on particles like prepositions, articles, and conjunctions (Salo, 2004). For two syllable words the primary stress will always fall on the first syllable. For multi-syllabic words the rules are different, as the primary stress will fall on the penultimate or antepenultimate syllable and the deciding factor is whether the penultimate syllable was heavy or light. Light

syllables have short vowels which are /a/, /i/ and /o/. Examples are /a/ and /na/ because they contain a short vowel and a single consonant (Salo, 2004). Heavy syllables on the other hand contain longer vowels, diphthongs, or a short vowel that are followed by consonants. Long vowels would include /u/ and /ɛ/; diphthongs include /ei/ and /au/; and syllables ending with one or more consonants like /ed/, /ost/ and /nand/. The biggest difference between light and heavy syllables is that light ones take less time to say than heavy ones (Salo, 2004).

Another "distinction, of some importance in the history of Sindarin, is that between open and closed syllables" (Salo, 2004). While we will not get into the historical significance of open versus closed syllables, we can discuss what they are. Open syllables are ones that consist of only a vowel or with a single consonant; the vowels in open syllables can include diphthongs and longer vowels, and can be light or heavy syllables. Closed syllables require more than one consonant, and will always be heavy syllables (Salo, 2004). Klingon does stress very differently from Sindarin. For verbs, the stress goes on the main verb instead of a prefix or suffix. Suffixes on verbs indicating negation require emphasis. This means the stress may change from the verb to that suffix. Nouns behave differently than verbs. Stress will be placed on the first suffix, or in the event of no suffix on the final syllable (Okrand, 1992). However, as with verbs, if the glottal stop is present, stress will be moved there. In addition, any time the glottal stop is present that syllable or suffix will be equally stressed, even if they are next to each other.

"[It] should be noted that there are some words which seem to have variable stress patters, with stress sometimes heard on one syllable and sometimes on another. ... The rules given above do not account for this variability, but if they are followed, stress will wind up on acceptable syllables" (Okrand, 1992). Where a speaker is from can have an influence on which

syllables get emphasis while others do not. Most of the time there are specific rules for stress in words, but when variability is acceptable, it is the same word just spoken differently.

Syllable division in Klingon is relatively simple. Most syllables follow the consonant vowel consonant rule, but prefixes and a few other words are simply a consonant and the vowel (The observed phonology of Klingon, 2014). Few exceptions to these rules exist, and these are usually related to non-Klingon words like *pɪqarD*, and *qIrq* (Syllables, 2016; the observed phonology of Klingon, 2014).

The Na'vi stress patterns are not very predictable. Because there are very few words that are identical except for stress, the lack of predictability is acceptable (Annis, 2013). Prepositions, postpositions, and conjunctions all give up their individual stress to become part of the words they are paired with; this means that the root word usually maintains the primary stress. When creating compound words, each word will retain its own stress; for example, *tireafya'o*, or spirit path, maintains stress on both the *ire* and *fya* syllables in the new compound word (Annis, 2013).

The syllable structures for Na'vi are strict but relatively straight forward. A vowel can be its own syllable; "any consonant can start a syllable"; acceptable consonant clusters include /f/, /ʦ/, or /s/ in combination with any of /p, t, k, p', t', k', m, n, ŋ, r, l, w, y/; a consonant cluster cannot be in the syllable final position; "syllables with a pseudo vowel must start with a consonant or consonant cluster and must not have a final consonant..." (Annis, 2013). Na'vi does not use long vowels; this means that the same vowel will not appear next to itself. In the event a compound word is formed and two identical vowels would appear side by side, they will be reduced to only one vowel (Annis, 2013). This means the speaker would not rearticulate

the vowel; it would only be pronounced one time. Doubled consonants are a little more flexible. They can occur when two bound morpheme words are combined. Annis, 2013, uses the example *tsuk* + *käteng* =*tsukkäteng*. The double consonant rule can be broken when using interjections. *Oìsss*, is used as an interjection meaning an anger cry (Annis, 2013).

Syntax

Originally meaning "a putting together" or an "arrangement" in ancient Greek, syntax is used to create an "accurate description of the sequence ... of elements in the linear structure of the sentence" (Yule, 2014, p. 94). Syntax "addresses the structure of sentences and their structural and functional relationships to one another" (Finegan, 2004). Syntax is the study of the relationship between words within a sentence, and that sentence with others.

In many languages word order is very important to convey a specific meaning; however, some languages exist in which word order is not as important (Finegan, 2004). Examples can include Latin and Na'vi. For this section, we will be working with the majority of languages, where word order is important. On occasion listeners or readers come across a sentence that has structural ambiguity. This is when a sentence or clause is worded in a manner where one could reasonably interpret two different meanings from the same sentence. For example, the sentence "Kelly ran into the man with the ladder" could be interpreted as Kelly ran into a man with her ladder, while the other interpretation could be that Kelly ran into a man who was carrying a ladder. It is in situations similar to this that word order is not enough to convey a sentence's meaning; it helps to know the structural units within it to convey the intended message. When we analyze a sentence based on its parts, we are looking at its constituents as they relate to each other (Finegan, 2004). As we learn Klingon, Sindarin, or Na'vi we must come

to understand "the notion that sentences consist not of words, but of constituents" (Finegan, 2004). This will help prevent miscommunications, and help us decipher any ambiguity in texts or speech. A constituent is "a syntactical unit that functions as part of a larger unit within the sentence," and common constituents are noun, verb, and prepositional phrases, and clauses (Finegan, 2004). In other words, constituents are words that fit together for a specific purpose and meaning in a sentence.

Constituents tend to be named after the function of the phrase's head, or main part. The head of a phrase is "the only obligatory part of a phrase;" however, there can be exceptions (Carnie, 2006). The two most important of these are the noun and verb phrases because they make up every sentence and clause. In addition, these two phrases can be expanded to contain additional sub-constituents. A single noun phrase can consist of only a noun, but can have an additional determiner, one or more adjectival phrases, one or more prepositional phrases and/or a relative clause (Carnie, 2006). Noun phrases and verb phrases work together to make clauses and sentences.

Pronouns

Pronouns are defined as a category of words that can take the place of noun phrases. They have the same distribution as pronouns within a sentence and wherever a noun phrase occurs a pronoun can also. The pronoun types are personal pronouns, relative pronouns, demonstrative pronouns, and indefinite (Finegan, 2004). Personal pronouns are the ones we are most familiar with, and we usually have first-, second-, and third- person. First person references the speaker like *I* or *me*; second person references the listener, and third person references what is being talked about. Demonstrative pronouns refer to things or people that

are either very near or very far away. Interrogative pronouns are used to indicate and form questions. Indefinite pronouns are used when the speaker does not want to refer to a specific person or group of people, and examples are *anyone, everybody*, and *someone.* Relative pronouns are used to introduce relative clauses, and have the same forms as the other types; they are related to the noun phrase being described (Finegan, 2004).

Relative Clauses

Relative clauses are essentially sentences embedded within a noun phrase that act to give additional information and modify the head noun phrase of the main sentence, which is called the head of the relative clause (Finegan, 2004). The relative clause phrase is often introduced by a relative pronoun. In English this pronoun, if referencing the head noun, can be omitted (Comrie, 1989).

Universals

Syntactic universals center on word order within a sentence, and there are many different possible ways to order a sentence. English and most other European languages follow a subject, verb, direct object (SVO) word order, while Japanese and many other Asian languages follow a subject, direct object, verb (SOV) word order, and even more different still Polynesian languages follow a verb, subject, and direct object (VSO) word order. With many different sentence organization options, the universal tendency is for subjects to precede the direct object (Finegan, 2004).

In addition, the universal tendency for relative clauses is to put the clause before the head in verb final languages and after the head in verb initial languages (Finegan, 2004). This means for the sentence *I found the book that Sara borrowed* the relative clause *that Sarah*

borrowed would precede the book in verb final languages, while following it in verb initial languages. Examples are *I that Sarah borrowed the book found* and *Found I the book that Sarah borrowed* respectively. The universal tendency that the phrase is positioned opposite of the verb can also apply to most other phrases as well including noun, and positional phrases, i.e. verb initial languages use post-positions, while verb final are pre-positions.

Pronoun universals are more easily defined. All languages have at least a first- and a second- person pronoun. If it has singular and dual pronouns, it will also have plural. If it has singular, dual, and trial forms, it will also have plural forms. The important distinction between these two forms is that trial is not a requirement for the presence of plural pronouns (Finegan, 2004). A *trial* pronoun is one that refers to three nouns, and a *dual* pronoun would refer to only two nouns. Another way to look at these is the list singular, plural, dual and trial. A language has one of these it will have all the ones to the left. In addition to the pronoun universals, there are some types of systems of pronouns that do not occur. For example, to date, there is not a system that lacks first and second person pronouns; lacks a plural pronoun; or makes an inclusive/exclusive distinction in any other position outside the first person (Comrie, 1989).

How do the languages compare?

For the most part Sindarin fell within the constraints of the universals. The most frequently occurring sentence structure was VSO; however, SVO orders were possible in subject topicalization. It was different from the universals for syntax because OVS orders were possible given the object was a pronoun (Salo, 2004). It once again fell within the universals for pronouns. It possessed only first-, second-, and third person; and singular and plural pronouns.

They made an additional distinction in the third person forms for respectful and familiar pronouns. The system was gendered naturally so males and females used their respective pronouns and all other objects used a neutered form (Salo, 2004). Relative clauses, for this language, are relatively simple; they follow the noun phrase being modified. This is not surprising since the language is verb initial.

Klingon was very different from the universals. Its basic sentence structure of OVS was very rare for Earth languages. English speakers learning Klingon should take extra care not to misinterpret sentences because the word order is simply flipped. For example, a sentence would appear as *the boy saw I* but we could misinterpret it as *the boy saw me*. "Any noun in the sentence indicating something other than subject or object comes first, before the object noun" (Okrand, 1992). The sentence *I saw the officer in the room* would be *in the room the officer saw I*. This can be difficult for some to understand and use on a regular basis as it is the opposite of what native English speakers would do. Klingon follows the basic universals for pronouns, as it contains first-, second- and third persons, and it differentiates between only singular and plurals.

Klingon deviates from the pronoun universals because it makes an additional distinction in its third person pronoun systems between things that are capable of using language and those that are not. For example, a person and a starship would have different pronouns. Klingon does not have grammatical gender. Pronouns are unique in Klingon on because they may be used as nouns; however, this is only for additional emphasis, and frequently they are neither present nor required, which is the opposite of English (Okrand, 1992). A relative pronoun *-bogh* is mandatory to set off a relative clause, and this affix corresponds to the

English relative pronouns which or that. Relative clauses can both precede or follow the noun it modifies. The rule for which position the clause takes depends on the head noun of the phrase; it follows the same order that it would have in the clause. This means if the clause will be functioning as the direct object, then it will go first in the sentence, and if it is the subject, it will go last (Okrand, 1992).

Na'vi is the most different from the universals for syntax. This language has "free constituent order." The constituent order can vary between SVO, SOV, and VSO with a very slight preference for VSO orders (Annis, 2013). However, it tends to follow the universals for pronouns. It contains singular, dual, trial, and plural pronoun types, in addition to the inclusive/exclusive distinction in the first person. In addition to the universals, it makes a distinction between animate and inanimate objects for third person pronouns, and has a reflexive pronoun designation for the first person singular pronoun. Gendered pronouns exist in Na'vi and only to be used to clarify or prevent ambiguity. English or other Western language speakers should take care not to over use the gendered pronouns (Annis, 2013).

The Na'vi text used did not have a lot of information about relative clauses, but it did make a couple of points. The relative pronoun will be inflected to match its role in the main clause (Annis, 2013). In addition, relative clauses are very different from other Earth languages. The clauses can either precede or follow the noun being modified.

It is common for languages to do one or the other, but it is very intriguing that a language would allow for both pre- and post-positional relative clauses. Both Na'vi and Klingon deviate from the universals for relative clauses. The system for placing relative clauses is Klingon is more rational and clear, while Na'vi is more random. Not having a single, clear,

systematic basis for relative clause placement can make Klingon and especially Na'vi difficult for new language learners. Once the learner has mastered the syntactic rules for Klingon, he or she should find learning the rules for relative clauses to be straight forward. Having free constituent order in a language, like Na'vi, where there aren't clear or systemic rules make learning the language as a young child or as someone with little background knowledge of how language works more difficult.

The syntax varied considerably for the three languages, just as they do in Earth languages. Each of the languages has similar pronoun systems that followed almost all of the universals discussed. Each one maintained its uniqueness as it presented additional pieces to increase the clarity of the messages presented like inclusive and exclusive pronoun distinctions in the correct places, differentiating between respectful and casual speech, and differentiating between language using and non-language using beings.

Conclusion

Despite the fact these fictional beings exist in different universes, it may also seem that these alien species would never be able to communicate because of their differences. When languages are broken down into their most basic forms, we can see just how similar they truly are and that would allow us to learn the languages and be able to communicate with each other. Despite the obvious physical differences between the species, none of them actually possess any additional phonation mechanisms like extra vocal chords, tongues or resonating chambers which would cause another species to be unable to communicate with them. There are many factors that go into learning a language and how we speak it like the age of learning, the amount of effort necessary, where they learn, and how they learn. The possibilities for

learning languages are endless once someone learns how to analyze and break apart language into its basic components. It is inspiring to see it done on not only Earth languages, but also three very different fictional alien languages. No matter what your reason for reading is I believe we can agree language is simply amazing.

Works Cited

Annis, W. S. (2013). Horen Lì'fyayä leNa'vi A Reference Grammar of Na'vi. *1.21*. Retrieved from http://files.learnnavi.org/docs/horen-lenavi.pdf

Carnie, A. (2006). Phrase Structure: A formal hypothesis for representing constituency. Retrieved from http://gawron.sdsu.edu/syntax/course_core/new_slides/3.2-PSRs.pdf

Comrie, B. (1989). *Language Universals & Linguistic Typology* (2nd ed.). Chicago: The University of Chicago Press.

Finegan, E. (2004). *Language: Its Structure and Use* (4th ed.). Thomson Wadsworth.

Hyman, L. M. (2010). *Do all languages have word accent? or: What's so great about being universal.* Retrieved from UC Berkeley Phonology Lab : http://linguistics.berkeley.edu/phonlab/documents/2010/Hyman%20UConn%20Accent%20PLAR.pdf

Moravcsik, E. A. (2007). What is universal about typology? *Linguistic Typology, 11*, 27-41.

Okrand, M. (1992). *The Klingon Dictionary.* New York, New York: Pocket Books.

Okrent, A. (2010). *In the land of invented languages.* New York: Spiegel & Grau trade paperbacks.

Piantadosi, S. T., & Gibson, E. (2014). Quantitative standards for absolute linguistic universals. *Cognitive Science, 13*, 736-756.

Salo, D. (2004). *A gateway to Sindarin: a grammar of an Elvish language from J. R. R. Tolkien's Lord of the rings.* Salt Lake City, Utah: The University of Utah Press.

Stress. (2017, Mar 15). Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Stress_(linguistics)

Syllables. (2016). Retrieved from Klingon Language Wiki:

http://www.klingonwiki.net/En/Syllables

The observed phonology of Klingon. (2014). Retrieved from Klingon Language Institute:

https://www.kli.org/wiki/The_observed_phonology_of_Klingon

Yip, M. (2002). *Tone.* Cambridge: Cambridge University Press.

Yule, G. (2014). *The Study of Language* (5th ed.). New York: Cambridge University Press.